CLAIMS

We claim:

1. An electrostatic imaging system having an intermediate transfer member to which a toner image is formed as a first transferred image from a first image-bearing surface,

the system comprising an electrostatic image-forming system, the first image-bearing surface, the intermediate transfer member, and a second image receiving surface that receives an image transferred from the intermediate transfer member;

the intermediate transfer member comprising;

a non-conductive flexible film layer,

a layer of an electrically conductive material affixed to a first surface of the non-conductive flexible film layer, and

the electrically conductive material layer having at least one electrically resistive polymeric coating thereon,

wherein the electrically conductive layer has segments between which segments there is reduced conductivity.

2. The system of claim 1 wherein there is an electrically insulating gap between the segments.

3. The system of claim 2 wherein the conductive layer has been scored or segmented laterally into electrically isolated regions.

4. The system of claim 1 wherein the resistive polymeric coating coats less than 100% of the conductive material, leaving a continuous conductive strip along an edge of the intermediate transfer member.

5. The system of claim 1 wherein the non-conductive film layer comprises polyethylene terephthalate.

6. The system of claim 5 wherein the polyethyleneterephthalate is between 0.025mm and 0.25mm thick (0.001 to 0.010 inches).

7. The system of claim 1 wherein the electrically conductive material layer comprises aluminum.

8. The system of claim 1 wherein the electrically conductive material layer has been vapor coated on the non-conductive film layer.

9. The system of claim 1 wherein the electrically conductive material layer has a volume resistivity of less than or equal to 10^4 Ohms/square.

10. The system of claim 1 wherein the resistive polymeric coating has an electrical resistance per unit area of between 10^3 and 10^{13} ohms/cm^2

11. The system of claim 1 wherein the resistive coating comprises a polyurethane layer.

12. The system of claim 11 wherein the polyurethane layer has an electrical resistance per unit area of between 10^3 and 10^{13} ohms/cm.

13. The system of claim 1 wherein the resistive coating layer is a fluorosilicone prepolymer.

14. The system of claim 13 wherein the fluorosilicone prepolymer has an electrical resistance per unit area of between 10^3 and 10^{13} ohms/cm.

15. The system of claim 1 wherein the intermediate transfer member is divided into at least two electrically independent segments.

16. The system of claim 1 wherein the intermediate transfer member is divided into at least three electrically independent segments.

17. The system of claim 1 wherein the intermediate transfer member is divided into four electrically independent segments.

18. A method for producing an image in an electrophotographic imaging apparatus, the method comprising:

exposing and developing at least one electrophotographic image on at least one first image receiving member;

transferring the at least one image to an intermediate transfer member in a first transfer step,

wherein the intermediate transfer member comprises a non-conductive layer, a conductive layer, and a polymeric electrically resistive layer,

wherein the resistive layer of the intermediate transfer member is conformable to the first image receiving member, and

biasing the conductive layer at the first transfer step by applying a first voltage directly to the conductive layer with at least one brush or probe directly in contact with the conductive layer; and

transferring the at least one image to a second image receiving substrate in a second transfer step,

biasing the conductive layer at the second transfer step by applying a second voltage directly to the conductive layer by at least one brush or probe directly in contact with the conductive layer, and

transferring in excess of 97% toner transfer from the intermediate transfer member to the second image receiving substrate.

19. The method of claim 18 wherein the conductive layer comprises segments of conductive material where the segments have insulated spaces between adjacent segments.

20. The method of claim 18 wherein the method results in greater than 99% toner transfer from the intermediate transfer member to the second image receiving substrate.

21. The method of claim 18 wherein the method results in greater than 97% toner transfer from the first image receiving member to the intermediate transfer member to the second image receiving substrate.

22. The method of claim 18 wherein the method results in greater than 99% toner transfer from the first image receiving member to the intermediate transfer member to the second image receiving substrate.

23. An electrostatic image transfer apparatus comprising:

a source of electrostatic toner;

an electrophotoconductive surface on which a first toner image is formed;

an intermediate transfer member to which the first toner image is transferred from the electrophotoconductive surface to form a first transferred toner image; and

a second image receptor to which the first transferred toner image can be transferred;

the intermediate transfer member comprising:

a non-conductive flexible film layer,

a layer of an electrically conductive material affixed to a first surface of the non-conductive flexible film layer, and

the electrically conductive material layer having at least one electrically resistive polymeric coating thereon,

wherein the electrically conductive layer has segments between which there is reduced electrical conductivity.

24. An intermediate transfer member on which a toner image is formed as a first transferred image bearing member, and to which the toner image is first transferred and from which the first transferred toner image is transferred a second time onto a second image bearing member; the intermediate transfer member comprising;

a non-conductive flexible film layer,

a layer of an electrically conductive material affixed to a first surface of the non-conductive flexible film layer, and

the electrically conductive material layer having at least one electrically resistive polymeric coating thereon,

wherein the electrically conductive layer has segments between which there is reduced conductivity.